DOCUMENT RESUME

ED 117 474 95 CE 006 129

AUTHOR Holland, John L.; Gottfredson, Gary D.
TITLE Using a Typology of Persons and Environments to Explain Careers: Some Extensions and Clarifications. Report No. 204.
INSTITUTION Johns Hopkins Univ., Baltimore, Md. Center for the Study of Social Organization of Schools.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
PUB DATE Oct 75
NOTE 53p.

EDRS PRICE MF-$0.83 HC-$3.50 Plus Postage
DESCRIPTORS Career Change; Career Choice; Career Opportunities; Career Planning; *Careers; Environmental Criteria; *Environmental Influences; Females; Minority Groups; Personal Adjustment; *Personality Theories; Self Congruence; *Typology; Vocational Adjustment; Vocational Aptitude; Vocational Counseling; Vocational Development; Vocational Interests
IDENTIFIERS *Holland (John L)

ABSTRACT

The paper uses John L. Holland's theory of careers to explain certain common career phenomena and concepts. An understanding of careers requires useful answers for four fundamental questions relating to vocational choice, vocational stability and instability, and vocational congruence. The theory of careers attempts to answer these fundamental questions by using a few carefully defined concepts (such as theoretical personality types and environmental models) to explain vocational behavior. A modern differentialist view can better reinterpret some common vocational developmental concepts, such as those associated with vocational maturity, personal integration, identity, crystalization of interests, and vocational adjustment than a developmental view. The typology of persons and environments is more useful than any of the life stage strategies in formulating a theory of careers applicable to the entire life span. It also is suitable for assessing career changes and crises, as well as for explaining the career experiences of women and minority groups. In summary, the typology can be used to organize occupational materials and experiences, to explain and interpret vocational data and behavior, and to plan remedial activities. It can serve as the basis for an entire vocational assistance orientation including self-use materials and, where needed, personal and group counseling. (Author/JR)

Documents acquired by ERIC include many informal unpublished materials not available from other sources. ERIC makes every effort to obtain the best copy available. Nevertheless, items of marginal reproducibility are often encountered and this affects the quality of the microfiche and hardcopy reproductions ERIC makes available via the ERIC Document Reproduction Service (EDRS). EDRS is not responsible for the quality of the original document. Reproductions supplied by EDRS are the best that can be made from the original.

JAN 1975

Center for Social Organization of Schools

ED117474

Report No. 204

October 1975

USING A TYPOLOGY OF PERSONS AND ENVIRONMENTS TO EXPLAIN CAREERS: SOME EXTENSIONS AND CLARIFICATIONS

John L. Holland and Gary D. Gottfredson

The Johns Hopkins University

CE006129

U.S. DEPARTMENT OF HEALTH EDUCATION & WELFARE NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

STAFF

John L. Holland, Director

James M. McPartland, Associate Director

Karl Alexander

Lloyd Bond

Denise C. Daiger

Joyce L. Epstein

James J. Fennessey

Gary D. Gottfredson

Ellen Greenberger

Larry J. Griffin

Edward J. Harsch

John H. Hollifield

Nancy L. Karweit

Hazel G. Kennedy

Edward L. McDill

Iris L. Raigns

James M. Richards

Robert E. Slavin

Julian C. Stanley

John S. Wodarski

Using a Typology of Persons and Environments to Explain Careers: Some Extensions and Clarifications

John L. Holland

Gary D. Gottfredson

Report No. 204

October 1975

Published by the Center for Social Organization of Schools, supported in part as a research and development center by funds from the United States National Institute of Education, Department of Health, Education and Welfare. The opinions expressed in this publication do not necessarily reflect the position or policy of the National Institute of Education, and no official endorsement by the Institute should be inferred.

The Johns Hopkins University

Baltimore, Maryland

Introductory Statement

The Center for Social Organization of Schools has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through three programs to achieve its objectives. The Schools and Maturity program is studying the effects of school, family, and peer group experiences on the development of attitudes consistent with psychosocial maturity. The objectives are to formulate, assess, and research important educational goals other than traditional academic achievement. The program has developed the Psychosocial Maturity (PSM) Inventory for the assessment of adolescent social, individual, and interpersonal adequacy. The School Organization program is currently concerned with authority-control structures, task structures, reward systems, and peer group processes in schools. It has produced a large-scale study of the effects of open schools, has developed the Teams-Games-Tournament (TGT) instructional process for teaching various subjects in elementary and secondary schools, and has produced a computerized system for school-wide attendance monitoring. The Careers program bases its work upon a theory of career development. It has developed a self-administered vocational guidance device and a self-directed career program to promote vocational development and to foster satisfying curricular decisions for high school, college, and adult populations.

This report, prepared by the Careers program, extends and clarifies Holland's theory of careers and its applications to career guidance.

Acknowledgments

We are indebted to the following persons for their helpful reviews of earlier drafts of this paper. Because we did not always follow their advice, they do not necessarily endorse the ideas expressed here. They include: Linda S. Gottfredson, Goeffrey Kelso, Charles F. Elton, Nancy K. Schlossberg, Laurel Oliver, Thomas M. Magoon, Samuel H. Osipow, Joseph P. Schnitzen, Richard W. Bolles, John H. Hollifield, Adam Lackey, Douglas T. Hall, Douglas R. Whitney, and Ellen Greenberger.

Abstract

The purposes of this paper are to show more completely than before how a theory of careers (Holland, 1973) can be used to explain common career phenomena and concepts, to report some new insights and supportive data, to rectify some theoretical misunderstandings, and to spell out the implications of these ideas for counseling practice and vocational interventions.

The theory attempts to provide explanations for some important vocational questions. What personal and environmental characteristics lead to vocational choice, involvement, satisfaction, and career achievement? What personal and environmental characteristics lead to stability of the kind and level of work a person performs? What personal and environmental characteristics lead to change or instability of the kind or level of work a person performs? Why do some people make choices that are congruent with their vocational assessments, others do not, and still others are undecided?

Most of the problems and questions about careers can be restated in terms of these more fundamental questions. Subsequent sections use these questions to illustrate the use of the theory, to explain common career behaviors, and to reinterpret developmental concepts.

Using a Typology of Persons and Environments to Explain Careers: Some Extensions and Clarifications

Any large-scale, long-term investment--writing a textbook, teaching a course, or developing a theory--requires occasional reexamination of its value, scope, and potential use. The purposes of this paper are: (a) to show more completely than before how a theory of careers (Holland, 1973) can be used to explain common career phenomena and concepts, (b) to report some new insights and supportive data, (c) to rectify some theoretical misunderstandings, and (d) to spell out the implications of these ideas for counseling practice and vocational interventions. These goals are incorporated in the following sections: What vocational questions require explanation? How the theory explains. Typological Interpretations of Developmental Concepts. Extending the Typology to the Life Span. Practical Implications for Vocational Assistance.

This article will be of most benefit to readers who have an understanding of the theory and its associated classification (Holland, 1973). Some knowledge of recent research is also helpful but not essential. Interested readers should see Lackey's (1975) annotated bibliography concerned with the theory, the Vocational Preference Inventory (VPI), and the Self-Directed Search (SDS) for the period 1972-1975. Likewise, Campbell (1974), Harmon (1974), Osipow (1973), Walsh (1973) and Warnath (1974) provide independent views of the theory's strengths and weaknesses.

In this paper, "career" is defined as a person's work history and his/her history of vocational aspirations (both kind and level) from birth to death.

What Vocational Questions Require Explanation?

The theory attempts to provide explanations for some important vocational questions. We have assumed that an understanding of careers requires useful answers to four fundamental questions.

1. What personal and environmental characteristics lead to vocational choice, involvement, satisfaction, and career achievement? Or, what personal and environmental characteristics lead to alienation, dissatisfaction, failure and dropping out of the work force?

2. What personal and environmental characteristics lead to stability of the kind and level of work a person performs? Why do most people have orderly or stable careers when their individual jobs are categorized in any one of several classification schemes?

3. What personal and environmental characteristics lead to change or instability of the kind or level of work a person performs? Or, why do people change jobs? And, what influences the search for new jobs?

4. Why do some people make choices that are congruent with their vocational assessments, others do not, and still others are undecided?

Most of the problems and questions about careers can be restated in terms of these more fundamental questions. Subsequent sections use these questions to illustrate the use of the theory, to explain common career behaviors, and to reinterpret developmental concepts.

How the Theory Explains

The theory attempts to answer the four fundamental questions by using a few carefully defined ideas to explain vocational behavior.

A person's resemblance to each of six theoretical personality types is assessed by the use of several special techniques (SDS, VPI, Strong-Campbell Interest Inventory, major field, or vocational preference). These techniques also provide an assessment of the supplementary concepts of consistency (the degree of compatibility of primary dispositions) and differentiation (clarity) of a person's personality pattern. Likewise, environments are assessed for their resemblance to each of six environmental models by use of several special techniques (the Environmental Assessment Technique, code of current job). These techniques also enable an assessment of the supplementary concepts of consistency and differentiation. The classification of both persons and environments provides a plan for summarizing, organizing, and understanding the voluminous information about people's psychological characteristics as well as the voluminous data about jobs.

The relations among types, among jobs, and between types and jobs are estimated according to a hexagonal arrangement or model. The hexagonal model arranges both types and jobs according to the their psychological similarities and differences. According to the hexagonal model the similarity of the types is inversely related to the distance between them. The hexagonal model is also used to estimate degrees of person-job congruency. For example, a Realistic person in a Realistic job is in a more congruent situation than a Realistic person in an Investigative job; a Realistic person in a Social job is in the most incongruent situation possible, and so on.

The last step consists of applying the formal account of the theory (typological and environmental formulations and the hypotheses about

their interaction) and the personal and environmental constructs (including differentiation and consistency) to explain and predict the most probable personal characteristics and performance. In short, the typology can be applied using a small number of constructs and explicit definitions.

In general, career phenomena are explained by following the theoretical formulations as explicitly as possible. The most recent statement of the theory (Holland, 1973) summarizes how careers are explained or understood, but some additional clarification is needed.

1. How does personal development, initial vocational choice, work involvement, and satisfaction come about?

People grow up to resemble one type or another because parents, schools, and neighborhoods serve as environments which reinforce some behaviors more than others and provide different models of suitable behavior. The reinforcement consists of the encouragement of selected activities, interests, self-estimates, and competencies. The modeling occurs because parents, peers, and friends engage in (model) some behaviors more than others. This experience contributes to the development of a characteristic, typological disposition, which, in turn, leads to a characteristic cluster of personal traits. Consequently when the need for choice or employment occurs, a person is predisposed toward some groups of occupations more than others (see Grandy & Stahmann, 1974). Different cultural influences, as well as other aspects of the interpersonal milieu, such as sex-role socialization, race, religion, and social class, promote the development of some types

more than others by differential encouragement of the experiences (activities, interests, competencies, etc.) that lead to different types.

Satisfaction and success result from a congruency of person and environment. People who possess the competencies required by their environment and who desire the rewards the environment yields are expected to be more satisfied and involved. In contrast, people who are not in an environment congruent with their personal characteristics are expected to be uninvolved, dissatisfied, and unsuccessful. Lack of involvement may result from a failure to find a congruent environment or from a lack of a clearly defined and consistent personality pattern so that no environment is clearly congruent with the individual's personality type. Caplan (1973, pp. 18-34) illustrates how a lack of match between a person's competencies and a job can result in a decision not to work when non-work provides more rewards than the incongruent work.

The secondary concepts of consistency and differentiation indicate the degree of precision that is expected for the explanation; that is, consistent and well-defined types are more predictable (their expected behavior is more likely to occur) than are inconsistent and poorly defined types.

2. Why do most people have orderly careers when the individual jobs in their work histories are categorized using an occupational classification scheme?

The majority of people manage to find work that is congruent with their type. More explicitly, the average person searches for or gravitates toward work environments in which his/her typological predilections and talents (activities, competencies, perceptions of self and

world, values, traits) are allowed expression and rewarded. The person-job congruence of the majority of people (Nafziger, Holland, Helms & McPartland, 1974) occurs because we assume that most adults are differentiated, and by definition well-defined types know what activities and competencies bring them satisfaction and achievement. They act on this knowledge to achieve congruency. In this instance, "know" includes both conscious and unconscious knowledge of self and environment.

Economic standing, race, and sex, are important determinants of careers. All influence and restrict occupational choice--vocational self-concepts and skills are not developed in a social vacuum. Everyone's personality is the result of a developmental process influenced by economic standing, race, sex, and myriad other influences. To the extent that any of these influences are actually incorporated in an individual's self-theory, they are within the scope of the present theory and are expected to promote orderly careers. Gottfredson, Gottfredson, and Holland (1975) have recently argued that the occupational structure in our society does not currently allow everyone to be employed in congruent jobs.

Orderly careers are also encouraged by the stereotyped ways in which employers perceive a person's credentials. In addition to the influences of education, race, and sex, employers seek people with "the right kind of experience." Consequently, it is easier to remain a plumber, an administrator, a secretary, or a teacher than it is to change occupations or roles within an occupation. To change usually requires energy, initiative, money, persistence, and the ability to persuade a potential employer that the desired change is rational and in the employer's interest.

3. Why do people change jobs? What influences their search for new jobs?

People change jobs because they are dissatisfied, because they are incompetent, because other workers wish them to leave, and for other personal and environmental reasons: better climate, physical disability, dissatisfied relatives, more money, and other influences. In theoretical terms, people leave because of excessive person-environment incongruency, or because of an opportunity to increase their congruency. Other things being equal, a particular person's departure should be explainable by a careful assessment of the structure and formulations specified earlier (Holland, 1973, pp. 40-43). What is the person's type, degree of differentiation and consistency? What was the degree of person-job congruency? Using these concepts to review the interaction for the reinforcement or match between preferred and rewarded activities, competencies, self and world views, values and traits should indicate the character of the incongruency that led to a job change. If no incongruency is evident, then the job change is likely to be based on an opportunity for increased congruency--a similar job at better pay, a higher-ranking position in the same field, and so on. Some other reasons for job change--such as a physical disability or closing of a company--cannot be interpreted in theoretical terms, but the job search that follows can be.

The search for the next job should follow the same principles. The person should search for jobs that are congruent with his/her type. If a consistent and well-defined type moves, he or she is expected to move between similar jobs because he/she has integrated consistent personal characteristics, and because he/she has a clear sense of vocational identity. Consequently, this person readily recognizes potentially congruent jobs when they become visible. In contrast, an inconsistent and poorly-defined type is expected to move between dissimilar jobs because he/she has incorporated diffuse and divergent personal characteristics, or because no clear patterning

of characteristics has developed. Because of an ambiguous vocational identity, the potential congruency of a particular job often appears ambiguous--a perception which frequently leads to an inappropriate job. A further hypothesis, not yet studied, is that poorly-defined people may appear confused or ambiguous to potential employers so that the search for congruency is complicated by the potential employer's inability to clearly determine what the applicant's desires and competencies are.

At the same time, people with substantial and varied personal resources, such as money, good looks, and health will have greater job-searching ability and may have more subsequent vocational success. A variety of liabilities such as ethnic origin, sex, poverty, prison records or infirmities frequently interfere with job seeking. Similarly, some people leave congruent jobs and take incongruent jobs to get more money. Researchers and practitioners must control for these assets and liabilities in order to test and use the typology. Like all psychological theories, the present one must be supplemented by a host of personal and environmental contingencies.

4. Why do some people make vocational choices that are congruent with assessment data, others do not, and still others are "undecided"?

People with consistent and well-defined personality patterns are expected to be "good" decision makers because of the implications of differentiation and consistency: integration of preferred activities, competencies, occupational preferences and self-estimates; and compatibility of primary dispositions.

Research supports this explanation. A recent large-scale study by Holland, Gottfredson and Nafziger (1975) found that differentiation and consistency predicted decision-making ability more efficiently than a group of rival predictors (age, social class, personality variables, CMI variables). Other findings (Holland et al., 1975) reveal that some types may be better decision-makers than others. The investigative type appears to be the best and the conventional type the worst. The formulations for these types appear to be consistent with these findings.

The making of decisions at appropriate times (end of high school, end of sophomore year, when to change jobs, when to marry, etc.) may reflect only different rates of personal development and different environmental contingencies. A large-scale study by Baird (1969) found no important and substantial differences between "decided" and "undecided" students. Similarly, a study by Kelso (1975) found that choice "realism" is highest for young people when they are about to enter the job market. Some findings do suggest that "decided" students score slightly higher on a measure of interpersonal competency (Holland et al., 1975; Baird, 1969) and slightly lower on measures of anxiety (Kimes & Troth, 1974) and dependency (Asbby, Wall, & Osipow, 1966). Taken together, these data suggest that not having made a choice may appropriately cause some uneasiness for college students, but that this "indecision" does not necessarily have important adverse consequences. Needless to say, severe cases of indecision such as "cannot decide which shoes to wear," and extreme cases of parental dependency or family conflict lie outside the scope of the theory.

Typological Interpretations of Developmental Concepts

There are two main traditions for understanding careers: the developmental view (Super, 1974; Crites, 1974a; Levinson, 1974) and the differentialist view (Williamson, 1972; Lofquist & Dawis, 1969; Holland, 1973). Both perspectives are useful for interpreting career data, but the purpose of this section is to illustrate how a typology--more properly a modern differentialist view--can be used to reinterpret some common vocational developmental concepts. These interpretations are intended to demonstrate the versatility of the typology and its usefulness for understanding and clarifying vocational developmental concepts.

This task is desirable because this application of the typology is not always understood and because it is desirable to rectify some misinterpretations of the modern differentialist point-of view. Some authors (Osipow, 1973; Crites, 1972; Super, 1969; Borow, 1973; Gysbers & Moore, 1975) have suggested that a matching or typological model cannot or does not cope with the role of development in career decisions and problems. They often bolster their case by criticizing Parson's (1909) model rather than a contemporary version. (What did the developmental model look like in 1909?) Equally important, developmentalists frequently ignore the main strengths of person-environment typologies: useful forecasts of achievement and satisfaction, practical structures for understanding person-environment interaction, and practical structures for organizing occupational and personal data, including work histories. The following paragraphs show how the present typology can be used to interpret developmental processes and concepts. Some of these interpretations are clearly speculative; others are supported by data.

The career development (CD) perspective has multiple origins in life stage theory and developmental psychology. Likewise, the CD perspective has multiple definitions and techniques for assessing vocational development concepts. To simplify discussion, Crites' (1974b) summary of the assessment of career development (Figure 1) is used to exemplify the CD view.

See Figure 1

In Figure 1, "Degrees of consistency of career choices" is readily translated into typological terms. Consistency of vocational choices or jobs over time can be assessed in degrees by categorizing successive choices using the classification scheme and by using the hexagonal model. (See Holland & Whitney, 1968, for a concrete illustration, or Holland, 1973, for the general method.) Agreement between choices according to level can also be obtained by simply noting the GED levels assigned to a person's vocational choices. Equally important, the act of classification automatically ties the data to the theory, including a tested explanation of the meaning of consistency.

The CD construct, "realism or wisdom of career choices," is conceived of as agreement between a person's interests, preferences, abilities, and social class and his/her choices. In the typology, realism of career choices is assessed by the degree of differentiation of a person's SDS profile. A differentiated SDS profile can only be obtained when a person's competencies, interests and self-estimates are in close agreement with each other. (Here a person's career choice is equivalent to vocational preferences in the SDS.) Social class also influences the profile because different social classes

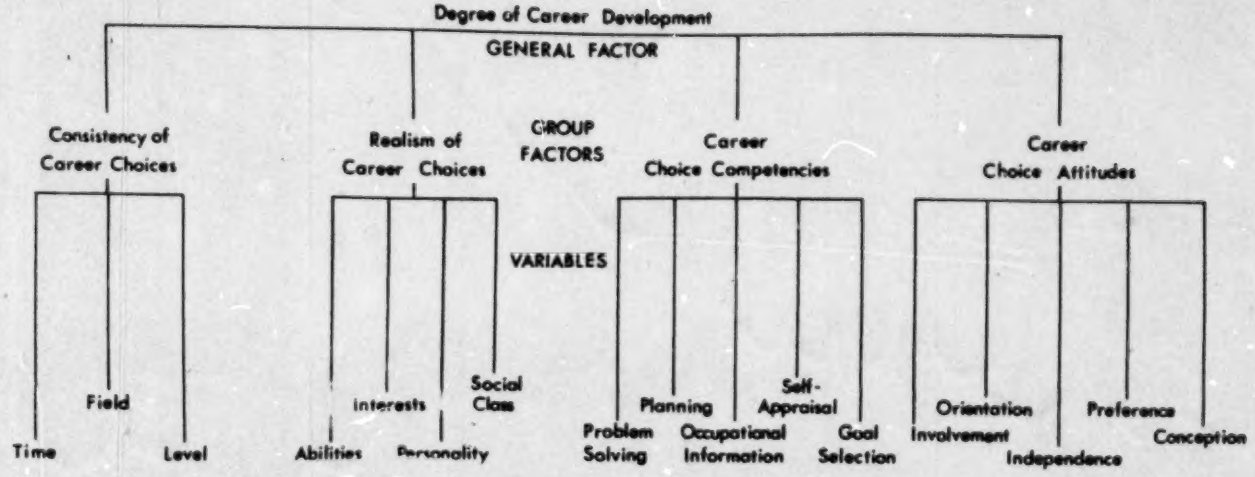

Fig. 1. The construct of vocational maturity.

From: Crites, J. O. Problems in the measurement of vocational maturity. Journal of Vocational Behavior, 1974, 4, 25-31. (b) Reprinted by permission of the publisher, Academic Press, Inc.

press for different types. Information about a person's economic and family resources, access to training or credentialling agencies, and job availability must be used to supplement information from the SDS profile in assessing realism.

Consistency of a person's SDS profile (i.e. the degree to which the types the person most resembles are compatible versus divergent) appears to be an aspect of personal integration that is not operational in the career development model, but which nevertheless appears to contribute to the realism or wisdom of career choices. Some evidence indicates that people with more consistent profiles or job codes have more predictable vocational preferences (Holland, 1968) and job changes (Holland, Sorensen, Clark, Nafziger & Blum, 1973) and are "better" decision makers (Holland, et al., 1975). Here "better" pertains to close correspondence between SDS assessment and desired alternatives.

"Career choice competencies" are measured by Crites' CMI competency scales. In the typology, choice competencies are indirectly assessed by a person's score on the Future Possibilities item, a decision-making task. Table 1 shows the task and how it is scored and interpreted in typological terms.

See Table 1

High scores on this quasi-performance measure of decision making are obtained by having current vocational aspirations that are supported by a comprehensive vocational assessment (the SDS) of interests, competencies, and self-estimates. This test (Future Possibilities)

Table 1

Future Possibilities

List all the jobs or occupations you could do and would like, if you had enough money to get the necessary training, and if you could get that job when you finished your training or education.

I could do and would like the following kinds of jobs:

1.
2.
3.
.
.
.
10.

Scoring procedure

1. Get first-letter code from the SDS.
2. Get first-letter code for each response to the future possibilities.
3. Using the hexagon, assign scores as follows for each future possibility listed.

   If the letters are the same give a score of 4

   If the letters are adjacent give a score of 3

   If the letters are not adjacent and not opposite give a score of 2

   If the letters are opposite on the hexagon give a score of 1
4. Add up the scores and divide by the number of future possibilities listed.

Note. See Holland, Gottfredson and Nafziger (1975) for more information.

asks a person to demonstrate his/her decision-making ability rather than querying her/him about knowledge of problem-solving, planning, occupational information, self-appraisal, and goal selection. The assumption is that getting high scores on the task requires "career choice competencies."

"Career choice attitudes," as conceived of by Crites, are related to the consistency and differentiation of a person's SDS profile, as well as intelligence and social class. The translation of this developmental concept is admittedly ambiguous and speculative in contrast to the other concepts.

Finally, a person's "degree of career development" as a general construct incorporates a person's score on the Future Possibilities task, constancy of aspiration type and level over time, and the degree of differentiation and consistency of the SDS, VPI or SCII profiles. Other operational definitions may have potential value for defining "degree of career development": for example, the summary code for a person's entire work history, or the summary code for the last three jobs, or variations on these ideas. Summary codes can be obtained by assigning 1, 2, or 3 letter codes to aspirations or jobs and by following the SDS scoring procedure (see Holland & Gottfredson, 1975, for an example).

In addition to the concepts associated with the vocational maturity work, some other development concepts from diverse sources can be reinterpreted in typological terms. For example, "personal integration" becomes the possession of a consistent and well-defined SDS, VPI, or

SCII profile. "Identity" appears related to differentiation. After all, "identity" means knowing who you are, and what you are not, what you want and what you don't want. Holland et al. (1975) have observed that a scale devised to assess vocational identity had low but significant correlations with differentiation scores. "Crystallization of interests" is likewise related to differentiation of the SDS, VPI, or SCII, or a series of similar aspirations or jobs. Perhaps degree of differentiation in typological terms also equals differentiation of personality or level of personal development (Edwards, Nafziger, & Holland, 1974). And "vocational adjustment" i.e. satisfaction and success, is assumed to be the outcome of a congruent person-job interaction. The reinterpretation of mid-career crises and life-stage problems is taken up in the next section.

Extending the Typology to the Life Span

The purpose of this section is to spell out more completely how the typology can be used to cope with career problems throughout the life span--adolescence through retirement. The earlier speculations (Holland, 1973, pp. 40-44) about how a person lives through successive environments (parents, neighborhoods, schools, social institutions, and jobs) will be elaborated.

The main assumption in this elaboration is that the typology of persons and environments is more useful than any of the life stage strategies for coping with career problems. Life stage speculations suffer from myriad scientific and practical difficulties: (a) they

usually treat people as a single type, differing only in stage of development, so they fail to deal adequately with the diversity of human personalities, (b) they have weak research and theoretical foundations (small N's have been used to generate a life time plan), and (c) they provide ambiguous guidance for practical interventions. ("her children have left the home, she must be..."). In addition, the boundaries assigned to life stages may vary from type to type and may be functions of the stability of a person's home and work environments. For these reasons, the prospect of ever getting life stage speculations in workable order now appears remote. In contrast, typologies of persons and environments do not make any assumptions about characteristic vocational crises or problems at different stages of life. Instead, they provide an explicit structure for assessing a person and his/her current situation at any age. This structure (What type of person is involved: What environment is he/she coping with? What environments are possible?) can be applied from adolescence to retirement, can be readily understood by the person, incorporates the differential tradition, incorporates many developmental speculations, and has a comprehensive and strong research and theoretical base. It has the added virtue of avoiding "ageist" stereotypes. These ideas are amplified in what follows.

Coping Styles

At any age, the level and quality of a person's vocational coping is a function of the interaction of personality type and type of environment plus the consistency and differentiation of each. Among these,

type and personality pattern appear especially important. The formulations for the types clearly imply that some types have higher aspirations than others, that some types are more likely to plan than others, that some types are more apt to remain lifelong learners than others, that some types are better decision-makers than others. Consequently different types will manage their careers and life problems in different ways and with different degrees of success. (See Holland, 1973, pp. 24-26, for other more explicit hypotheses about the expected life styles of the types.)

For example, a woman with a well-defined Investigative-Artistic personality pattern would be expected to have high educational and vocational aspirations, to have good decision-making ability, to have a strong and lifelong interest in learning, to have moderate personal competency, and to have a marked interest in creative and high level performance rather than in leadership. In addition, such a person would be prone either to remold her environment or leave it in the face of adversity (Holland, 1973, p. 42).

In contrast, a man with a poorly-defined, Social-Artistic pattern would be expected to have low educational and vocational aspirations, to have poor decision-making skills, to have a weak interest in lifelong learning, to have a modest degree of interpersonal competency, to lack interest in high level performance (vocational or educational), to readily accede to environmental adversity rather than struggling to revise his environment or moving to a new environment. In short, a review of the typological formulations implies a comprehensive set of

expectations for characterizing how we might expect a particular person to cope with common vocational problems. Such hypotheses should, however, be modified by environmental assessments and any contingencies beyond the scope of the theory.

Ages and Stages

The person-environment model is applicable to any age--adolescence through retirement. At any age, the counselor and the person can use the typology to review the congruency of the current job (environment) for its implications for staying, going, revising a current job, or changing one's self. The person's personality, as expressed in an interest profile and in the scoring of his/her aspirations and work history, should imply some useful diagnostic and treatment ideas. The principal value of life-stage speculations is that they provide additional hypotheses about the nature of the person's current difficulties, which can be reviewed if the typological hypotheses are found wanting. Because maturity is a complex construct composed of skills and dispositions presumed to lead to adjustment, CD measures may provide clues about the origins of problems. At the same time, they will seldom suggest explicit remedial actions a person can take or reassure a person about a tentative choice or goal. In addition, diagnoses resulting from the CD perspective usually specify "inadequate self-knowledge" or other intrapsychic problems to the exclusion of problems of person-environment interaction. Many vocational problems result from lack of opportunity, undesirable environments, or unsatisfactory person-environment interactions.

Age is primarily important for two reasons: (a) it moderates the clarity of predictions based on interest and ability assessments because people change or become clearer about themselves over time; and (b) important events in people's lives differ systematically with age. Nevertheless, the similarities of vocational problems at different ages appear to outweigh the differences. For example, selecting and worrying about work in high school, deciding on or being forced into a first job, being fired from a job, being promoted, getting fed up with a job, worrying about failing or imagined incompetency--all can culminate in a crisis, or can produce a high degree of tension, and all can be structured and explained as person-environment interactions and their consequence. Likewise, questions of identity, self-confidence, sexuality, work involvement, personal expression, interpersonal competence, satisfaction, achievement, and family relations are intertwined with most vocational decisions at any age and can also be examined as person-environment interaction.

Because some tasks are characteristically encountered at specific times, groups of people sometimes show patterns of similar responses. The "dissertation anxiety" that sometimes occurs when students with high aspirations realize that their scientific contribution will be modest, the uneasiness that occurs when some aspiring workers see that they have reached a plateau, and the "culture fatigue" characteristic of Peace Corps Volunteers (Brein & David, 1971) are examples of these patterns. Knowledge of the characteristic "crises" provides some

hypotheses about vocational problems and the normative information may be a source of reassurance to clients. Unfortunately, the incremental value of these speculations over a detailed examination of person-environment interactions is not known. At this time, life stage hypotheses form a ricketty roulette wheel of possibilities which counselors should spin only after the more obvious hypotheses have been explored.

The evidence about adolescents and adults implies that person-job congruence and job satisfaction increase with age and that the majority of the population maintain stable work histories or careers. The evidence for this conclusion now is pervasive and compelling. See the following studies, many of which are based on national representative samples of adolescents and adults (McLaughlin & Tiedeman, 1974; Nafziger et al., 1974; Holland et al., 1973; Parsons & Wigtil, 1974; Statistical Policy Division, 1973; Quinn, Staines & McCullough, 1974). Most recently, Gottfredson, Gottfredson, and Holland (1975) using Nafziger et al. (1974) data, have shown that although areas of divergence exist, most people wish to remain in jobs of the same general category as their present job. Finally, the evidence for the stability of vocational and avocational interests over long time spans is substantial (Strong, 1943; Campbell, 1971). Campbell (1971, p. 82) reports that stability coefficients of interests of men for periods of 20 years range from .64 to .72; and for periods of 11 to 20 years, they range from .64 to .80. These stability coefficients tend to increase with increasing age of initial measurement.

The results of the diagnostic test, Future Possibilities, also suggest that vocational decision-making ability varies only slightly with age from adolescence on; the decision-making score distributions of high school juniors, college juniors, and employed adults are characterized primarily by their marked overlap rather than their differences. This is additional evidence for the similarity of some vocational principles at different ages.

Change and Crisis

As we indicated earlier, change in career direction is amenable to the typology at hand. For example, many (we are inclined to believe most) mid-career shifts are not drastic shifts in direction. Gilbride (1973) found that 80% of his resigned priests (a social job) entered other Social occupations. Clopton (1972) compared 40 men, characterized as having made radical mid-life changes, with 40 comparable men who had not made changes. A coding of the pre- and post-change jobs again reveals that the majority fall in the same major category--for instance, minister to vocational counselor. The typology also provides a single method for assessing the degree of change or shift (Holland & Whitney, 1968; Holland et al., 1973).

At the same time, some people do undergo change or develop somewhat different personalities (become more like another type than an earlier type, become a more differentiated person of the same type, become a more inconsistent person, or some other change). In general, these changes occur in accordance with the same principles outlined for the development of the types. Persons in congruent work situations will change very

little, for they are rewarded for the expression of their current interests, self-views, competencies and personal traits. Because the majority of people have success in finding congruent work, stability of type is the rule rather than the exception. In contrast, persons in incongruent situations will change the most, for they are ignored or punished--their personal dispositions do not fit the reward structure.

It is reasonable to expect that many career shifts attributed to special events or special experiences can be explained as particular person-environment interactions. For example, some major life experiences are enabling or facilitating, because they carry with them the possibility of a type being more able than before to act out his/her

central goals, preferred activities, values, etc.--promotion, sudden wealth, special training or personal development. Some subsequent behavior may then be explained as due to an increased opportunity for an Enterprising type, for instance, to assume the enterprising role more completely, with more power, more resources, etc. The person has not changed--the environment has.

Other life experiences involve deprivation or thwarting influences: loss of job, poverty, divorce, loss of close relatives, demotion, declining energy, declining competency. Again how a person copes with these experiences is expected to be in part a function of his/her type, differentiation, and so on.

Some real life examples appear to illustrate these principles. A minister with social and enterprising skills was fired for the first time in his career and became interested in the process of job finding to such an extent that he has now become an expert in the placement process. True to form (we should say, true to well-defined type), he continues to counsel and preach by conducting numerous workshops and by writing self-help books. In short, his job loss resulted in an opportunity to use nearly all of his old skills, to reach a larger audience (ministry), and to attain more personal fulfillment in terms of greater self-expression, fewer employer restrictions, and greater income.

In contrast, other people sometimes deteriorate after a job lay-off by failing to face the situation, remaining inactive, or drinking. Kroll, Dinklage, Lee, Morley, and Wilson (1970) document how workers in a shoe factory (largely Realistic people) coped with a factory closing

in divergent ways. Some saw the signs of closing six months in advance; others ignored the signs. Some made a smooth transition by planning and had a new job ready the day the factory closed (higher levels of S and E?); others waited until the actual closing, went home and watched TV for several weeks (low levels of S and E?).

Finally, some experiences will be thwarting to one type but will be enabling to another. For example, divorce for a Social type married to an unsociable Investigative type may allow a gregarious person the freedom to satisfy social needs that the restrictive marriage did not. Some of the positive outcomes of widowhood discovered by Maas and Kuypers (1974) can be interpreted in this way. The death of a husband may open the door that previously blocked career or personal development.

Special Groups

Suggestions that special theories are needed for women or minority groups are made from time to time (Zytowski, 1969; Psathas, 1968). Three arguments converge in suggesting that the most useful and wisest approach is a single theory for all. First, because all groups are members of the same species, the psychological principles underlying vocational behavior are presumably the same for all groups. Different distributions of types in different groups are some of the phenomena that a theory of vocational behavior must explain; these differences are not grounds for separate theories. In principle, the effects of sex, ethnic identity, or religion contribute to the development of the types just as do any other social, personal, or environmental

influences--social class, geography, physical size, physical or social stigmata, and intelligence. Interest or personality inventories and achievement tests are tools for assessing the results of these processes, and group differences are data with which any theory must jibe. The present theory predicts differences in personal development when personal history differs: people given Social opportunities, rewarded for Social behavior, and provided with Social models are expected to develop Social preferences and competencies.

Second, the data do not support the hypothesis that different psychological processes exist for different groups (group-by-type interactions). For example, Rose and Elton (1971) argue for separate theories for men and women with some of the strongest data anyone has presented, but the sex-by-type interactions they found, although statistically significant, are tiny compared to the main effects in their data, making these interactions of little practical value. Vocational assessments for men, women, blacks, and whites reveal both similarities and differences among the distributions of types (Nafziger et al., 1974; Gottfredson & Holland, 1975a; Gottfredson, Holland, & Gottfredson, 1975), and there is good evidence that these assessments have useful validity for all groups (Kimball, Sedlacek & Brooks, 1973; Gottfredson & Holland, 1975b; Holland & Lutz, 1968). In addition, different assessment devices all show common patterns of sex and ethnic group differences (Allport, Vernon, & Lindsey, 1970; Campbell, 1971; Gordon, 1975; Hanson, 1975; Lamb, 1974).

Third, using the same typology and assessments for all groups to organize vocational information has important practical uses: (a) to assess people's current status--the cumulative effects of heredity and socialization (including the effects of racism and sexism), (b) to plan more advantageous career development by visualizing areas of desirable vocational development. Instead of ignoring a person's history we can use this classification and others to estimate the psychological distance between current status and one or more vocational alternatives. The width of the chasm to be jumped is important information for anyone wishing to go from here to there. A knowledge of current status and deficiencies allows a person to plan action leading to his or her goals. For example, a young man or woman who desires a career as a mechanic but lacks mechanical skills is best served by learning of this deficiency. Sound decision-making requires the acquisition of these skills--or in some cases abandoning the goal if the skills cannot be acquired or if the activities prove to be distasteful. Likewise a young man or woman who desires a career as a marriage counselor but who lacks social skills can use this information to try to develop these talents or to revise his or her goals. (c) To design job-seeking strategies by specifying the most promising alternatives. A Social type might seek a higher level Social job, a Conventional person, a better Conventional job, or people might explore jobs in related categories of the classification. In general, women and men who capitalize on their greatest strengths are expected to

maximize their satisfaction and success. The indiscriminate encouragement of women and men to try any kind of work is not in their best interests, for it will result in some people trying jobs for which they have little interest or competency and ignoring jobs for which they have more. Part of this misleading emphasis may result from a failure to distinguish between type and level of occupations in efforts to improve the standing of minorities or women (Gottfredson et al., 1975).

Practical Implications for Vocational Assistance

The practical implications of the typology for vocational guidance have been summarized earlier (Holland, 1973, pp. 85-93). In short, the typology can be used to organize occupational materials and experiences, to explain and interpret vocational data and behavior, and to plan remedial activities. The purpose of the present discussion is to clarify and extend some of these ideas using more recent experience, data and thinking.

Personal and Group Counseling

The main functions proposed earlier--organization, explanation, and remediation--now appear to have some unanticipated but desirable side-effects. Organizing occupational information according to the typology was intended to make the use of such materials easier and to reduce counselor work. At the same time, the typological organization of materials may have increased people's independence and competency for dealing with their vocational questions and problems. Likewise, the use of the typology to explain vocational problems and to plan developmental or remedial activities appears to generate some of the

same effects. Users (students and employed persons) become actively engaged in understanding their current situation because they can understand the assessment (SDS, VPI, SCII, coded work history), comprehend the theory and classification scheme, and see the reasonableness of some next steps (Zener & Schnuelle, 1972). The dependency often observed after vocational assessment appears to occur less frequently (Krivatsy, 1974). In short, the typology and its tools appear to give understanding and power to the user throughout the vocational counseling process.

Earlier, the implications of the typology for counseling theory were unclear and were ignored. Now it may be helpful to outline how the use of the typology in counseling can be related to other points of view.

In many ways, the typology is neutral with respect to theories of counseling and learning, but it also is congenial with many. For example, the theory suggests that people learn to become types. All major theories of learning seem useful in explaining learning in this context. Cognitive theory can be employed to help explain how people with increasing work experience, acquire different views of themselves (self-estimates) that lead to job changes. Or, social learning theory (models, and occasional or vicarious reinforcement) can be applied to explain how people become more like some types than others. Likewise, Cochran, Vinitsky, and Warren (1974) have shown how the typology and the SDS can be used in a developmentally-oriented counseling program to facilitate self- and environmental exploration, including their integration.

We now see a new vocational assistance orientation evolving out of the typology, the increased need for service, the hard times, the use of

self-administered inventories, and the remnants of other points of view.

It is hard to give this new orientation a name, but the Exploratory View is helpful as a beginning. Using materials that a person can use with little aid (self-administered and self-scored inventories and vocational information), a person defines his/her vocational questions and begins to help him/herself. The counselor acts as a consultant or resource person who encourages (reinforces) exploration of self and potential environmental solutions (jobs, training, etc.), but the counselor assumes that most people (those not seriously disturbed or mentally defective) can resolve vocational questions if they are provided a rich climate of information and exploratory reinforcement. Attempts to clarify self-concepts, to reduce psychological conflicts, or to facilitate development via person-to-person learning are minimized and engaged in only after self-directed and informational programs have been tried. Counselors emphasize the client's need to explore and to come to his/her own conclusions. Counselor's do not intervene with a person who exhibits "premature crystallization". Making choices under any circumstances may be more constructive in the long run than postponement because choices lead to involvement, learning, and responsibility. In short, this view accepts the person's definition of the problem and helps him/her deal with it by providing resources and information, but above all this approach emphasizes exploration of self and the world as the road to vocational decision-making, planning, and problem solving. Finally, professional information--what the counselor really thinks, test manuals, texts, etc.--are available

rather than hidden so that the traditional balance of knowledge and resources is more even. This openness is a built-in safeguard against counselor ineptitude and inadvertant sexist or racist responses.

In this framework, person-to-person counseling then becomes the treatment of last rather than first resort. In this way, counselors are more likely to serve people most in need of their skills and to avoid people readily served by simpler and cheaper methods. People who have found the typological materials insufficient will arrive with some preparation for engaging the counselor. Likewise, the counselor will have some "open" diagnostic information immediately at his/her disposal for discussion with the person.

The counselor can continue to work with the person using the typology as a means of communicating and use whatever counseling theory and program appears useable and congenial. Or the counselor can use the typology in a thorough fashion to assess the person's current situation and any proposed alternatives, to understand the person, to propose possible explanations of the difficulties in decision making, to characterize a person's work history and its implications, or to engage in activities designed to promote needed personal growth in order to facilitate a person's vocational decisions.

As it stands, the typology is assumed to be especially useful because it provides a comprehensive set of concepts for organizing and understanding personal and vocational data, assessment techniques using the same constructs (SDS, VPI, SCII, ACT II), a diagnostic scheme, and now an outline of a closely related approach to vocational assistance.

Still unexplored is the possibility of using the typology to assign or suggest treatment according to type. For instance, I's may profit more from reading, S's from group activities, C's from structured workbooks. Some clinical experience suggests that these hypotheses may be too simple. At any rate, it is clear that the typology can be used to orient an entire vocational assistance program including associated vocational counseling, or the typology can easily be integrated with other orientations to vocational counseling. In that situation, the typological view becomes one more approach in a counselor's repertoire.

The application of the typology to impersonal forms of vocational assistance has recently been outlined--Holland, 1974, outlines how the typology can be applied to the vocational needs of high school and college students as well as employed adults. In contrast to traditional vocational counseling, these plans are concerned with improving the vocational environments in schools and at work to help resolve the majority of vocational questions by the provision of information and self-administered help in more accessible and inexpensive ways.

Effects and Evaluation

In the end, whether or not anyone has benefited from these ideas is the paramount question. Although evaluations of vocational treatments are not a popular enterprise, they form the only avenue for a reliable and consensual understanding of what works, and perhaps more important, of how to design more potent and economical forms of vocational assistance.

Recent research on the effects of computerized counseling and paper guidance systems provide some provocative results. Studies of the effects of computer-assistance systems are usually positive (Harris, 1974). The effects of group vocational guidance using highly structured materials have received very positive evaluations by college students (Magoon, 1965). And the effects of the Self-Directed Search have been positive (Redmond, 1973; Zener & Schnuelle, 1972) and essentially equal to the effects of counselors (Nolan, 1974; Krivatsy, 1974). Even programmed test interpretations have sometimes received high marks when compared to counselor interpretations (Forster, 1969; Tipton, 1969; Graff, Danish & Austin, 1972).

These results lead to the next question--why do impersonal forms of assistance work as well as they do? Because impersonal interventions primarily provide information, a likely hypothesis is that many people can readily use well-organized information to resolve vocational questions. The function of the typology in the SDS may be largely to organize personal and vocational information in ways which are easily comprehended. Only a rare counselor can communicate as much personal and occupational information at the same rate and accuracy. It is even conceivable that person-to-person communications (counseling) about many vocational difficulties actually interfere with the transmission of accurate personal-environmental information. Put another way, impersonal vocational counseling devices may provide a kind of limited empathic experience by giving back to the person some vocational alternatives and understandings that are often congruent with a person's

self-perceptions. This experience may then generate feelings of being understood that resemble the feelings generated by empathic therapists (Rogers, 1975), and such positive feelings may, in turn, generate self- and occupational exploration. These speculations are untested but they appear worth further exploration.

If impersonal devices continue to receive positive evaluations, perhaps we should explore other ways of making needed personal and environmental information more accessible and clear. Unsettling as it is to say, we may have over-rated the virtues of vocational counseling and under-rated the potential of simpler methods.

Discussion

This report has been an unabashed attempt to illustrate the virtues of a particular typology. Consequently, it is important to attempt a stocktaking of both its strengths and weaknesses, to delineate some pressing research needs, to cope with some remaining complaints and misunderstandings, and to reiterate some vocational assistance issues. For balance, the reader should consult the book reviews and texts cited in the introduction.

Strengths and Weaknesses

The virtues of the typology are easily summarized: (a) it is easily grasped. (b) it has many of the virtues of a useful theory--clear definitions, internally consistent structure, broad scope, and formalizations for dealing with both personal development and change, (c) it has a broad base of research support using samples of children, adolescents, college students, and employed adults, (d) it is easily

applied to practical problems--the development of vocational assessment devices, the classification and interpretation of personal and environmental data, and the conduct of vocational counseling.

The weaknesses of the typology appear as follows: (a) the hypotheses about vocational environments are only partially tested and require much more exploration, (b) the hypotheses about the person-environment interactions in the last account of the typology (Holland, 1973) have received recent strong support (Helms & Williams, 1975), but they also require more testing, (c) the formulations about personal development (Holland, 1973, pp. 11-13) and change (pp. 41-44) have received some support (Holland, 1973, pp. 53-54; Grandy & Stahmann, 1974; Edwards, Nafziger & Holland, 1974) but they need a more comprehensive examination, (d) the classification of occupations may differ slightly for the different devices used to assess the types, and (e) many important personal and environmental contingencies lie outside the scope of the typology. For example, the distribution of power or influence within a person's environment (at home or at work) makes a difference, so researchers must control for power, and practitioners must make some estimate of the role of power in evaluating environments for their clients. The role of social class, intelligence, and special aptitudes is incorporated only indirectly and incompletely in the typology so these personal characteristics must also be allowed for.

Complaints and Misunderstandings

The typology suffers from multiple misunderstandings of its formulations, scope, and empirical support. Some of these are contrary to the

facts; some are meaningless complaints and some represent genuine controversy.

Some misunderstandings arise from reading incomplete, unclear, out-of-date, or inaccurate textbook accounts of the theory instead of reading the 1973 version. Other misunderstandings probably result from the author's penchant for brevity.

Some complaints can be disposed of with facts. Contrary to some reports, National Merit Finalists were used in only five of 250 investigations. Large scale investigations, using nationally representative samples of high school students, and employed adults, document that the typology is not limited to the psychology of college students (Nafziger et al., 1974; Holland et al., 1973; Parsons & Wigtil, 1974; McLaughlin & Tiedeman, 1974). See Lackey's (1975) bibliography for other investigations using employed adults.

Some critics (Yonge, 1965; McConnell, 1968) believe that the assessment of types and environments is flawed by "circularity." They fail to see that the actual assessment of types and their environments is performed by using different populations and methods. In addition, once a code has been established for an occupation or major by conducting a census of types, the use of the environmental code is completely independent of individual assessment in subsequent research or applications. Richards, Bulkeley & Richards (1971) have shown that environmental assessments based on different kinds of information (faculty, curricula, or degrees granted) lead to similar environmental assessments. In short, critics fail to differentiate the rational parallelism of the types and environments from the independent assessment of each.

The belief that the typology does not explain the development or changing of types no longer holds; the belief that the theory is "mostly descriptive" also appears contrary to its formalizations and the illustrative explanations provided earlier. Much of this kind of criticism revolves around an unresolvable issue. Some counselors and psychologists still prefer deep-seated, inner forces as explanations. In contrast, the present typology provides more easily tested explanations, using well-defined constructs, although even these have considerable ambiguity or surplus meaning.

The arguments that the typology and associated assessments apply only to the status quo (Warnath, 1974; Cole & Hanson, 1975) form complex questions when they are carefully examined. In one sense, any speculations about the way the world is in any formal theory can only be consistent with the current situation, not the future. So far, the effects of the present typology, as translated into the SDS, are positive and liberating (more alternatives) and equal to the effects of counselors; and no negative effects are documented. Finally, typologies that are open to public examination and revision appear to be more socially beneficial and responsible than subjective speculations about their effects in an ambiguous future.

New Research and Practice

Although we have suggested that many of the career problems of adults are amenable to understanding using the typology, the need for large scale studies of adults and their careers is acute. Articles

about mid-career crises are popular but precious little data have been accumulated, and what we have is usually limited to small, unrepresentative samples of middle class men.

In practice, the typology would benefit from a comprehensive trial in a few settings. Although counseling and career centers often use the assessment devices (SDS and VPI) and the classification scheme to organize materials, none has tried to apply the typology to an entire vocational assistance program in a thorough-going way. That kind of experience is also needed to evaluate the practical virtues and limitations of the typology.

In research, workers usually make use only of selected constructs (for instance, single types) so that the complete theory goes unused or untested--a practice which leads to an underestimation of the theory's explanatory and predictive power. We need more studies like the recent experiment by Helms and Williams (1973) in which all the personal and environmental constructs and their interactions were tested. Finally, we need studies of the proposed explanations of change (Holland, 1973, pp. 41 - 44). Although the evidence for the organizational virtues of the typology is abundant, the hypotheses about change are largely untested and form complex and difficult questions in the study of careers and of human behavior generally.

References

Allport, G. W., Vernon, P. E., & Lindzey, G. Manual: Study of Values (3rd Ed.) New York: Houghton Mifflin, 1970.

Ashby, J. D., Wall, H. W., & Osipow, S. H. Vocational certainty and indecision in college freshmen. Personnel and Guidance Journal, 1966, 45, 1037-1041.

Baird, L. L. The undecided student--How different is he? Personnel and Guidance Journal, 1969, 47, 429-434.

Borow, H. (Ed.) Career guidance for a new age. Boston: Houghton Mifflin, 1973.

Brein, M., & David, K. H. Intercultural communication and the adjustment of the sojourner. Psychological Bulletin, 1971, 76, 215-230.

Campbell, D. P. Handbook for the Strong Vocational Interest Blank. Stanford, California: Stanford University Press, 1971.

Campbell, D. P. Have hexagon will travel. Contemporary Psychology, 1974, 19, 585-587.

Caplan, N. Competency among hard-to-employ youths. Ann Arbor: Center for Research on Utilization of Scientific Knowledge, University of Michigan, 1973.

Clopton, W. Jr. An exploratory study of career change in middle life. Unpublished doctoral dissertation, Department of Psychology, University of Cincinnati, 1972.

Cochran, D. J., Vinitsky, M. H., & Warren, P. M. Career counseling: Beyond "test and tell." Personnel and Guidance Journal, 1974, 52, 659-664.

Cole, N. S., & Hanson, G. R. Impact of interest inventories on career choice. In E. Diamond (Ed.), Issues of sex bias and sex fairness in career interest measurement. Washington, D. C.: National Institute of Education, 1975.

Crites, J. O. Career maturity. Measurement in Education, 1972-73, 4 (Winter), 1-8.

Crites, J. O. Career development process: A model of vocational maturity. In E. L. Herr (Ed.), Vocational guidance and human development. Boston: Houghton Mifflin, 1974. (a)

Crites, J. O. Problems in the measurement of vocational maturity. Journal of Vocational Behavior, 1974, 4, 25-31. (b)

Edwards, K. J., Nafziger, D. H., & Holland, J. L. Differentiation of occupational perceptions among different age groups. Journal of Vocational Behavior, 1974, 4, 311-318.

Forster, J. R. Comparing feedback methods after testing. Journal of Counseling Psychology, 1969, 16, 222-226.

Gilbride, T. V. Holland's theory and resignations from the Catholic clergy. Journal of Counseling Psychology, 1973, 20, 190-191.

Gordon, L. V. The measurement of interpersonal values. Chicago: Science Research Associates, 1975.

Gottfredson, G. D., & Holland, J. L. Some normative self-report data on activities, competencies, occupational preferences, and ability ratings for high school and college students, and employed men and women. JSAS Catalog of Selected Documents in Psychology, 1975, 5, 192. (Ms. No. 859) (a)

Gottfredson, G. D. & Holland, J. L. Vocational choices of men and women: A comparison of predictors from the Self-Directed Search. Journal of Counseling Psychology, 1975, 22, 28-34. (b)

Gottfredson, G. D., Holland, J. L., & Gottfredson, L. S. The relation of vocational aspirations and assessments to employment reality. Journal of Vocational Behavior, 1975, 7, 135-148.

Gottfredson, L. S., Gottfredson, G. D., & Holland, J. L. A complementary perspective on occupational structure. Unpublished manuscript, Johns Hopkins University, Center for Social Organization of Schools, 1975.

Graff, R. W., Danish, S., & Austin, B. Student reactions to three kinds of vocational-educational counseling. Journal of Counseling Psychology, 1972, 19, 224-228.

Grandy, T. G., & Stahmann, R. F. Family influence on college students' vocational choice: Predicting from Holland's personality types. Journal of College Student Personnel, 1974, 15, 404-409.

Gysbers, N. C., & Moore, E. J. Beyond career development--life career development. Personnel and Guidance Journal, 1975, 53, 647-652.

Hanson, G. R. Assessing the career interests of college youth: Summary of research and applications (Report No. 67). Iowa City: American College Testing Program, 1975.

Harmon, L. W. Review of Making Vocational Choices: A Theory of Careers. Measurement and Evaluation in Guidance, 1974, 7, 198-199.

Harris, J. The computer: Guidance tool of the future. Journal of Counseling Psychology, 1974, 21, 331-339.

Helms, S. T., & Williams, G. D. An experimental study of the reactions of high school students to simulated jobs (Research Report No. 161). Baltimore: Center for Social Organization of Schools, Johns Hopkins University, 1973. (ERIC Document Reproduction Service No. ED 087 882)

Holland, J. L. Explorations of a theory of vocational choice: VI. A longitudinal study using a sample of typical college students. Journal of Applied Psychology Monograph, 1968, 52 (1, pt. 2).

Holland, J. L. Making vocational choices: A theory of careers. Englewood Cliffs, New Jersey: Prentice-Hall, 1973.

Holland, J. L. Some practical remedies for providing vocational guidance for everyone. Educational Researcher, 1974, 3, 9-15.

Holland, J. L., & Gottfredson, G. D. Predictive value and psychological meaning of vocational aspirations. Journal of Vocational Behavior, 1975, 6, 349-363.

Holland, J. L., Gottfredson, G. D., & Nafziger, D. H. Testing the validity of some theoretical signs of vocational decision-making ability. Journal of Counseling Psychology, 1975, 22, 411-422.

Holland, J. L., & Lutz, S. W. Predicting a student's vocational choice. Personnel and Guidance Journal, 1968, 46, 428-436.

Holland, J. L., Sorensen, A. B., Clark, J. P., Nafziger, D. H., & Blum, Z. D. Applying an occupational classification to a representative sample of work histories. Journal of Applied Psychology, 1973, 58, 34-41.

Holland, J. L., & Whitney, D. R. Changes in the vocational plans of college students: Orderly or random? (Research Report No. 25). Iowa City: American College Testing Program, 1968.

Kelso, G. I. The influences of stage of leaving school on vocational maturity and realism of vocational choice. Journal of Vocational Behavior, 1975, 7, 29-39.

Kimball, R. L., Sedlacek, W. E., & Brooks, G. C., Jr. Black and White vocational interests in Holland's Self-Directed Search (SDS). Journal of Negro Education, 1973, 42, 1-4.

Kimes, H. G. & Troth, W. A. Relationship of trait anxiety to career decisiveness. Journal of Counseling Psychology, 1974, 21, 277-280.

Krivatsy, S. Differential effects of three vocational counseling treatments. Unpublished doctoral dissertation, University of Maryland, College Park, 1974.

Kroll, A. M., Dinklage, L. G., Lee, J., Morley, E. D.,& Wilson, E. H Career development: Growth and crisis. New York: Wiley, 1970.

Lackey, A. An annotated bibliography for Holland's theory, the Self-Directed Search, and the Vocational Preference Inventory (1972-1975). JSAS Catalog of Selected Documents in Psychology, in press.

Lamb, R. R. Concurrent validity of the American College Testing Interest Inventory for minority group members. Unpublished doctoral dissertation, University of Iowa, 1974.

Levinson, D. J., Darrow, C.; Klein, E., Levinson, M.,& McKee, B. The psychosocial development of men in early adulthood and the mid-life transition, In D. F. Hicks, A. Thomas & M. Roff (Eds.),Life History Research in Psychopathology, Vol. 3. Minneapolis: University of Minnesota Press, 1974.

Lofquist, L. H., & Dawis, R. V. Adjustment to work. New York: Appleton-Century-Crofts, 1969.

Maas, H. S. & Kuypers, J. A. From thirty to seventy. San Francisco: Jossey-Bass, 1974.

Magoon, T. M. A model of effective problem solving applied to educational and vocational planning with students (Research Report No. 13-65). College Park: Counseling Center, University of Maryland, 1965.

McConnell, T. R. What college for whom? Contemporary Psychology, 1968 13, 99-101.

McLaughlin, D. H. & Tiedeman, D. V. Eleven-year stability and change as reflected in project talent data through the Flanagan, Holland, and Roe occupational classification systems. Journal of Vocational Behavior, 1974, 5, 177-196.

Nafziger, D. H., Holland, J. L., Helms, S. T., & McPartland, J. M. Applying an occupational classification to the work histories of young men and women. Journal of Vocational Behavior, 1974, 5, 331-345.

Nolan, J. J. The effectiveness of the Self-Directed Search compared with group counseling in promoting information-seeking behavior and realism of vocational choice (Doctoral dissertation, University of Maryland, College Park, 1974). Dissertation Abstracts International, 1974, 35, 195A. (University Microfilms No. 74-16, 569)

Osipow, S. H. Theories of career development. New York: Appleton-Century-Crofts, 1973.

Parsons, F. Choosing a vocation, New York: Houghton Mifflin, 1909.

Parsons, G. E., & Wigtil, J. V. Occupational mobility as measured by Holland's theory of career selection. Journal of Vocational Behavior, 1974, 5, 321-330.

Psathas, G. Toward a theory of occupational choice for women. Sociology and Social Research, 1968, 52, 253-268.

Quinn, R. P., Staines, G. L., & McCullough, M. R. Job satisfaction: Is there a trend? (Manpower Research Monograph No. 30). Washington, D. C.: U. S. Government Printing Office, 1974.

Redmond, R. E. Increasing vocational information-seeking behaviors of high school students (Doctoral dissertation, University of Maryland, College Park, 1972). Dissertation Abstracts International, 1973, 34, 2311A-2312A. (University Microfilms No. 73-17, 046)

Richards, J. M., Jr., Bulkeley, E. M., & Richards, B. M. Faculty and curriculum as measures of two-year college environments. Paper presented at the American Educational Research Association Convention, New York, 1971.

Rogers, C. R. Empathic: An unappreciated way of being. Counseling Psychologist, 1975, 5, 2-10.

Rose, H. A., & Elton, C. F. Sex and occupational choice. Journal of Counseling Psychology, 1971, 18, 456-461.

Statistical Policy Division of the Office of Management and Budget. Social indicators. Washington, D. C.: U.S. Government Printing Office, 1973.

Strong, E. K., Jr. Vocational interests of men and women. Stanford, California: Stanford University Press, 1943.

Super, D. E. Vocational development theory. Counseling Psychologist, 1969, 1, 2-14.

Super, D. E. Vocational maturity theory. In D. E. Super (Ed.), Measuring vocational maturity for counseling. Washington, D. C.: American Personnel and Guidance Association, 1974.

Tipton, R. Relative effectiveness of two methods of interpreting ability test scores. Journal of Counseling Psychology, 1969, 16, 75-80.

Walsh, W. B. Theories of person-environment interaction: Implications for the college student (Monograph 10). Iowa City: American College Testing Program, 1973.

Warnath, C. F. Review of Making Vocational Choices: A Theory of Careers. Personnel and Guidance Journal, 1974, 52, 337-338.

Williamson, E. G. Trait-factor theory and individual differences. In B. Stefflre, W. H. Grant (Eds.), Theories of counseling (2nd ed.). New York: McGraw-Hill, 1972.

Yonge, G. D. Students. Review of Educational Research, 1965, 35, 253-263.

Zener, T. Baldwin, & Schnuelle, L. An evaluation of the Self-Directed Search: A Guide to Educational and Vocational Planning (Report No. 124). Johns Hopkins University, Center for Social Organization of Schools, 1972. (ERIC Document Reproduction Service No. ED 061 458)

Zytowski, D. G. Toward a theory of career development for women. Personnel and Guidance Journal, 1969, 47, 660-664.